PRODUCT SPECIFICATION

DATE：12/18/2012

cosmo ELECTRONICS CORPORATION	Photocoupler： K1010 3Z	NO.62P00058	REV. 1
		SHEET 1 OF 6	

High Reliability Photocoupler

● Features

1.Low input current type (I_F=0.1mA).

2.Current transfer ratio (CTR : 50~600% at I_F=0.1mA Vce=5V).

3.High isolation voltage between input and output (Viso:5000Vrms).

4.Compact long creepage distance type package.

5.Pb free and RoHS compliant.

6.Agency Approvals

- UL UL1577 / CUL C22.2 No.1 & NTC No.5, File No. E169586
- VDE EN60747, File No.101347
- FIMKO EN60065, File No.FI23149
- FIMKO EN60950, File No.FI24584
- SEMKO EN60065, File No.1016484
- SEMKO EN60950, File No.1016433
- CQC GB4943 / GB8898, File No.CQC10001049555/CQC08001023986

● Application：

1.Computer terminals, programmable controllers.

2.Facsimile equipment, Audio, Video.

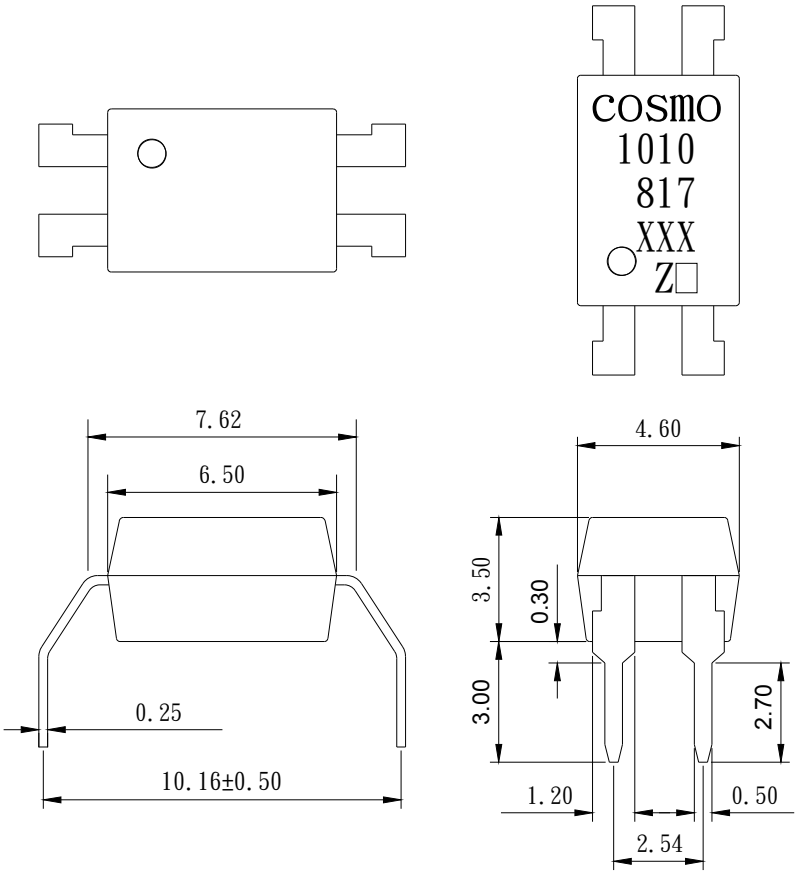
3.Communications, telephone, etc..

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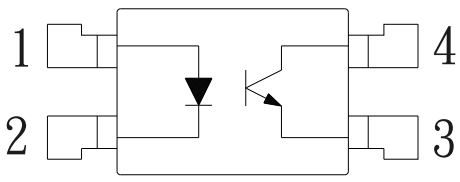
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1. OUTSIDE DIMENSION : UNIT (mm)



TOLERANCE : ±0.2mm

2. SCHEMATIC : TOP VIEW



1. Anode
2. Cathode
3. Emitter
4. Collector

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● Absolute Maximum Ratings

Parameter		Symbol	Rating	Unit
Input	Forward current	I_F	50	mA
	Peak forward current	I_{FM}	1	A
	Reverse voltage	V_R	6	V
	Power dissipation	P_D	70	mW
Output	Collector-emitter voltage	V_{CEO}	80	V
	Emitter-collector voltage	V_{ECO}	6	V
	Collector current	I_C	50	mA
	Collector power dissipation	P_C	150	mW
	Junction temperature	Tj	125	℃
Total power dissipation		P_{tot}	200	mW
Isolation voltage 1 minute		V_{iso}	5000	Vrms
Operating temperature		T_{opr}	-55 to +115	℃
Storage temperature		T_{stg}	-55 to +125	℃
Soldering temperature 10 second		T_{sol}	260	℃

● Electro-optical Characteristics

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input	Forward voltage	V_F	I_F=20mA	-	1.2	1.4	V
	Peak forward voltage	V_{FM}	I_{FM}=0.5A	-	-	3.0	V
	Reverse current	I_R	V_R=4V	-	-	10	μA
	Terminal capacitance	C_t	V=0, f=1KHz	-	30	-	pF
Output	Collector dark current	I_{CEO}	V_{CE}=20V	-	-	0.1	μA
Transfer charac-teristics	Current transfer ratio	CTR	I_F=0.1mA, V_{CE}=5V	50	-	600	%
	Collector-emitter saturation	$V_{CE(sat)}$	I_F=20mA, I_C=1mA	-	0.1	0.2	V
	Isolation resistance	R_{iso}	DC500V	$5x10^{10}$	10^{11}	-	Ω
	Floating capacitance	C_f	V=0, f=1MHz	-	0.6	1.0	pF
	Response time (Rise)	t_r	V_{CE}=2V, I_C=2mA, R_L=100Ω	-	4	18	μs
	Response time (Fall)	t_f		-	3	18	μs

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Classification table of current transfer ratio is shown below.

Rank mark	CTR (%)
K10103ZA	100 TO 600
K10103ZB	200 TO 500
K10103ZC	160 TO 400
K10103ZD	120 TO 300
K10103ZE	50 TO 600

Fig.1 **Current Transfer Ratio vs. Forward Current**

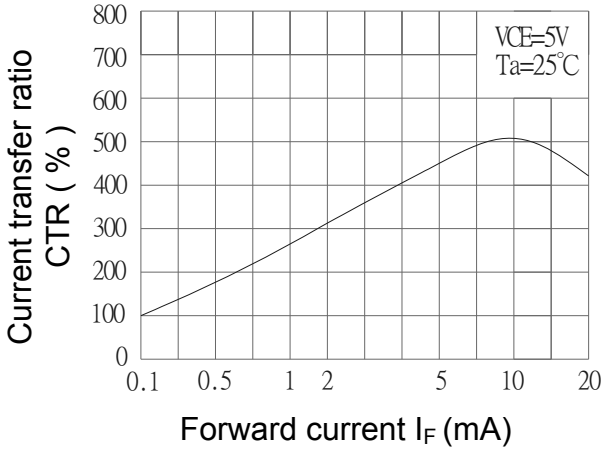


Fig.2 **Collector Power Dissipation vs. Ambient Temperature**

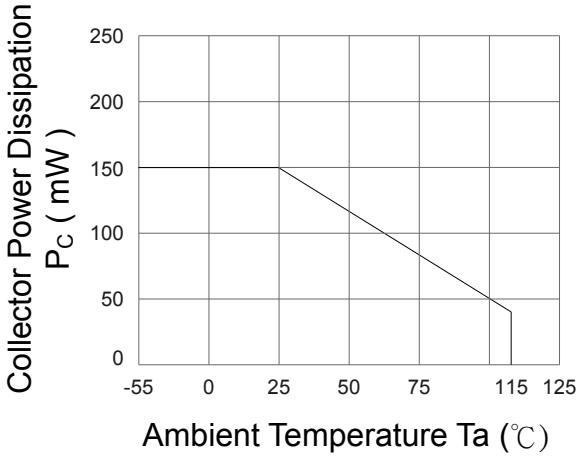


Fig.3 **Collector Dark Current vs. Ambient Temperature**

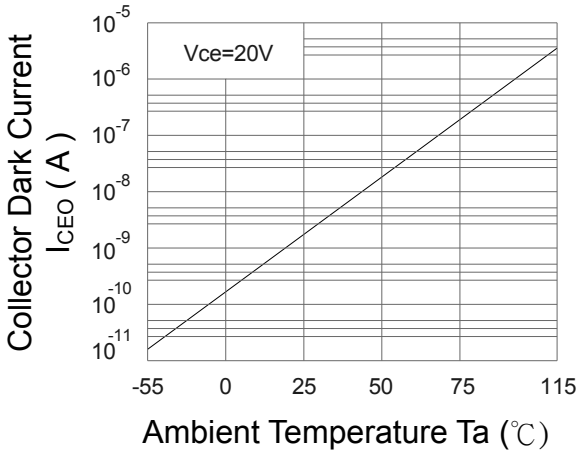


Fig.4 **Forward Current vs. Ambient Temperature**

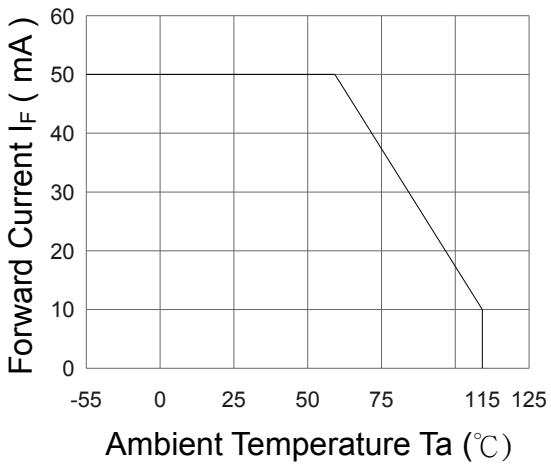
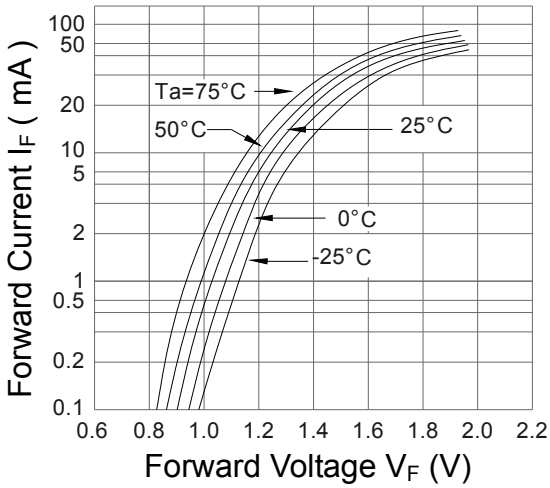


Fig.5 **Forward Current vs. Forward Voltage**



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Fig.6 **Collector Current vs. Collector-Emitter Voltage**

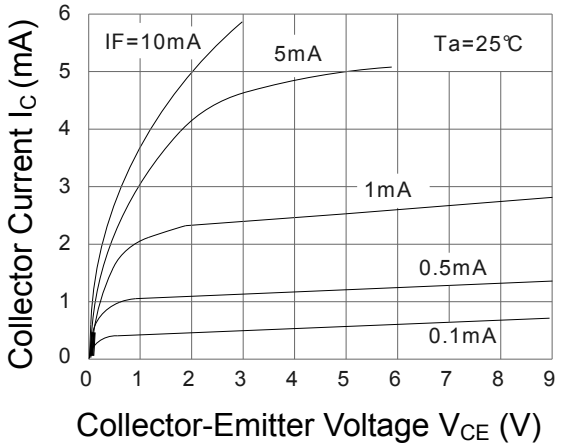


Fig.7 **Relative Current Transfer Ratio vs. Ambient Temperature**

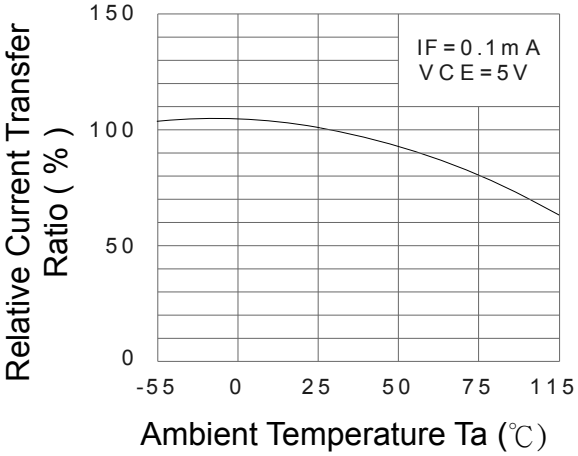


Fig.8 **Collector-Emitter Saturation Voltage vs. Ambient Temperature**

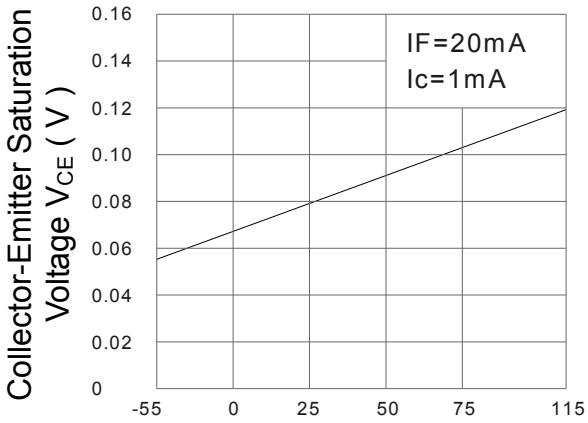


Fig.9 **Collector-Emitter Saturation Voltage vs. Forward Current**

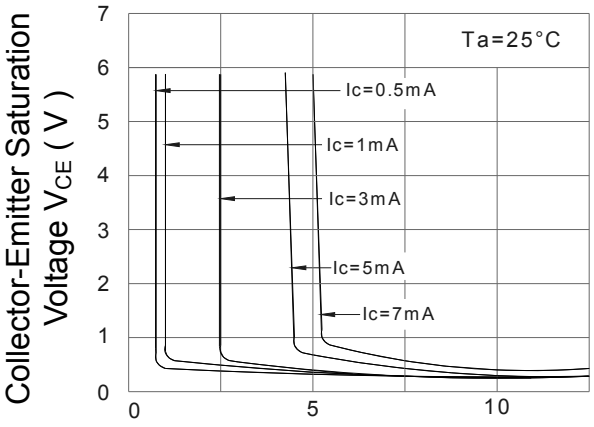


Fig.10 **Response Time vs. Load Resistance**

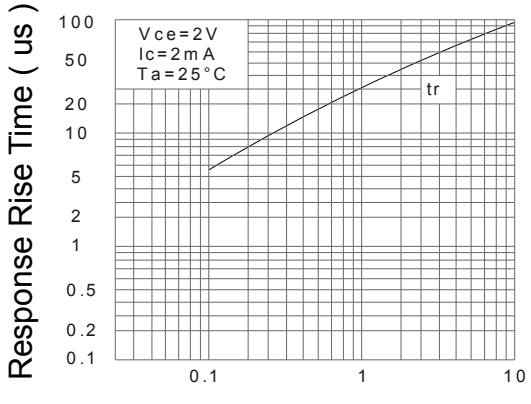
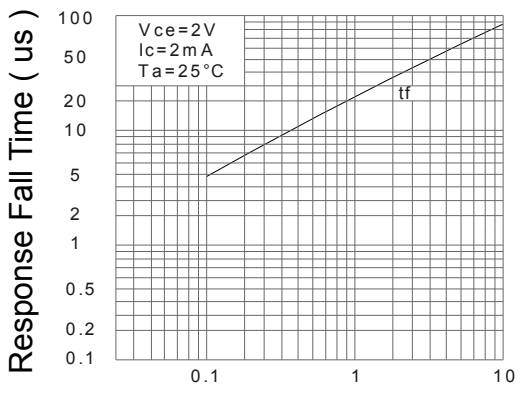


Fig.11 **Response Time vs. Load Resistance**



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